This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A transducer for converting from electrical energy to mechanical energy, the transducer comprising:

at least two electrodes;

a polymer arranged in a manner which causes a portion of the polymer to deflect from a first position with a first surface area to a second position with a second surface area in response to a change in electric field;

a support structure for securing the portion of the polymer at the first position wherein the portion of the polymer is stretched from an initial surface area to the first surface area to improve the mechanical response of the transducer when it deflects from the first position to the second position and wherein the support structure is for supplying a force to the stretched portion of the polymer that prevents the stretched portion of the polymer from returning from the first surface area to about its initial surface area and wherein a ratio of the first surface area to the initial surface area is in the range of about 1.5 to 50.

2. (Original) The transducer of claim 1 wherein the transducer has a maximum linear strain of at least about 50 percent in response to the change in electric field.

3. (Original) The transducer of claim 1 wherein the transducer has a maximum linear strain of at least about 100 percent in response to the change in electric field.

4. (Original) The transducer of claim 1 wherein the transducer has a maximum area strain of at least about 100 percent in response to the change in electric field.

5. (Currently Amended) The transducer of claim 1 ~~wherein the pre-strain is applied to a first orthogonal direction at a pre-strain greater than pre-strain in a second orthogonal direction~~

wherein, after the polymer is stretched from the initial surface area, a strain in the portion of the electroactive polymer in a first orthogonal direction is greater than the strain in the portion of the electroactive polymer in a second orthogonal direction.

6. (Currently Amended) The transducer of claim 5 wherein the ~~pre-strain~~ greater strain applied to the portion of the electroactive polymer in the first orthogonal direction is used to enhance deflection of the electroactive polymer in the second orthogonal direction.

7. (Currently Amended) The transducer of claim ~~6~~ 1 wherein the polymer has a dielectric constant between about 2 and about 20.

8. (Original) The transducer of claim 1 wherein the polymer comprises one of a silicone rubber and an acrylic.

9. (Cancelled).

10. (Original) The transducer of claim 1 wherein the polymer comprises a textured surface.

11. (Original) The transducer of claim 1 wherein the polymer has a thickness between about 1 micrometer and 2 millimeters.

12. (Original) The transducer of claim 1 wherein the polymer is one of a commercially available silicone elastomer, polyurethane, PVDF copolymer or adhesive elastomer.

13. (Original) The transducer of claim 1 wherein the change in electric field is at most about 440 MegaVolts/meter.

14. (Original) The transducer of claim 1 wherein the polymer has a maximum actuation pressure between about 0.1 Pa and about 10 MPa.

15. (Original) The transducer of claim 1 wherein the polymer has an operational frequency less than about 100 kHz.

16. (Original) The transducer of claim 1 wherein the polymer has an elastic modulus below about 100 MPa.

17. (Original)The transducer of claim 1 wherein the portion of the polymer deflects out of the plane of the polymer in response to the change in electric field.

18.-22 (Cancelled)

23. (Original) The transducer of claim 1 wherein the transducer is included in an artificial muscle.

24. (Previously Presented) A transducer for converting electrical energy to mechanical energy, the transducer comprising:

at least two electrodes; and

a polymer arranged in a manner which causes a portion of the polymer to deflect from a first position with a first length to a second position with a second length in response to a change in electric field provided by the at least two electrodes, wherein the portion deflects with a linear strain between about 50 percent and about 215 percent between the first length and the second length in response to the change in electric field during operation of said transducer;

a support structure for securing the polymer during the deflection between the first position and the second position.

25. (Original) The transducer of claim 24 wherein the polymer comprises one of a silicone rubber and an acrylic.

26. (Original) The transducer of claim 24 wherein the polymer is one of a commercially available silicone elastomer, polyurethane, PVDF copolymer or adhesive elastomer.

27.-52. (Cancelled)

53. (Previously Presented)The transducer of claim 24 wherein the polymer has a dielectric constant between about 2 and about 20.

54. (Previously Presented) The transducer of claim 24 wherein the polymer comprises one of a silicone rubber and an acrylic.

55. (Previously Presented) The transducer of claim 24 wherein the polymer has a thickness between about 1 micrometer and 2 millimeters.

56. (Previously Presented) The transducer of claim 24 wherein the polymer has an elastic modulus below about 100 MPa.

57. (Previously Presented) The transducer of claim 24 wherein the portion of the polymer deflects out of the plane of the polymer in response to the change in electric field.

58. (Previously Presented) The transducer of claim 24 further comprising a stiff member attached to a portion of the polymer.

59. (Previously Presented) The transducer of claim 24 wherein the transducer is included in an artificial muscle.